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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,398	11/20/2006	Satoshi Tomita	TYOS127328	8636

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EXAMINER
VETERE, ROBERT A

ART UNIT	PAPER NUMBER
1712	

NOTIFICATION DATE	DELIVERY MODE
09/01/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

efiling@cojk.com

Office Action Summary	Application No.	Applicant(s)	
	10/595,398	TOMITA ET AL.	
	Examiner	Art Unit	
	ROBERT VETERE	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiner's Comments

An amendment, amending claim 1, was received and entered on 6/29/10.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 4-5 and 7-9 are rejected under 35 U.S.C. 102(a) as being anticipated by Akamatsu et al. (Eur. Phys. J. D 24, pp. 377-380).

Claims 1 and 7-9: Akamatsu teaches a method for producing a composite film of nickel nanoparticles and polyimide (Abst.) comprising the steps of: treating a polyimide film with aqueous KOH (claimed alkali solution) (p. 377, Col. 2 through p. 378, Col. 1) to form carboxyl groups on the polyimide film (Abst.), contacting the film with nickel ions (p. 378, Col. 1) which are adsorbed in the polyimide film (claimed dope) (Abst.) and thermally reducing the in hydrogen gas (claimed reducing gas) to produce a metal nanoparticle composite film (p. 378, Col. 2, Abst.). Akamatsu further teaches that the size of the nanoparticles (claimed volume filling ratio and thickness of the nanoparticle layer) is controlled by the heat treatment step (p. 379, Col. 1). Akamatsu further teaches that the thickness of the nanoparticle film can be adjusted by additional heat treatment steps (p. 379, Col. 1). That is, by heating the nanoparticles for a longer period of time, the thickness of the film is adjusted. Akamatsu also teaches that the additional heat treatment step is performed at a temperature different from the first heat treatment step (p. 379, Col. 1).

Claim 5: Akamatsu also teaches that the first heat treatment step is performed at 300ºC and the second heat treatment step is performed at 350ºC (p. 379, Col. 1).

Claim 4: While Akamatsu fails to expressly teach that the second temperature is lower than the first temperature, Akamatsu also teaches that modification of the nanoparticles fails when the second heat treatment step is below 200ºC (p. 379, Col. 1). Thus, Akamatsu implicitly teaches that a second

temperature between 200-300ºC (i.e. lower than the first temperature) is suitable for modifying the thickness of the nanoparticles.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akamatsu in light of van de Veerdonk et al. (US 7,029,773).

Claim 6: Akamatsu teaches that the second heat treatment is performed in a reducing gas to modify the particles by annealing them (p. 379, both columns), but fails to teach that it is performed in an inert gas. van de Veerdonk teaches a method of modifying nanoparticles by annealing the nanoparticles and explains that an inert gas can be used in place of a reducing gas when it is desirable to prevent further reduction of the particles (5:61-6:12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have performed the second heat treatment step under an inert gas in the method of Akamatsu when it was desirable to prevent further reduction of the nanoparticles with the predictable expectation of success.

Response to Arguments

4. Applicant's arguments filed 6/29/10 have been fully considered but they are not persuasive.

Applicant first argues that Akamatsu fails to teach that the properties of the polyimide film is controlled through the heat treatment step. This is not persuasive. The currently presented claims state that the volume filling ratio of the nanoparticles in the film is controlled by the heat treatment step. As stated above, Akamatsu teaches that the size of the nanoparticles within the film is controlled by the heat treatment steps (see, e.g., p. 379). Controlling the size of the nanoparticles within the film will control the volume of the film that is occupied by the nanoparticles. Thus, the teaching of Akamatsu meets this limitation.

Applicant further argues that Akamatsu fails to teach a second heat treatment step. This is not persuasive. Akamatsu, at p. 379, teaches that the metal ions are first treated at 300ºC to form clusters (first heat treatment) and are further treated at 350ºC to grow the nanoparticles (second heat treatment).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT VETERE whose telephone number is (571)270-1864. The examiner can normally be reached on Mon-Fri 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Vetere/
Examiner, Art Unit 1712

/Michael Cleveland/

Supervisory Patent Examiner, Art Unit 1712